

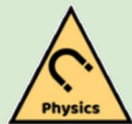
Science - Year 3 Autumn 1: Scheme of Learning

What did we learn in KS1 - Retrieval and consolidation

On entry into Beechview, data will be shared, where possible, from feeder schools with regard to science attainment and pupils will complete a baseline assessment linked to KS1 learning.


Teachers will use this data to identify gaps in knowledge and skills to plan an appropriate sequence of lessons retrieving prior learning in the context of an investigation linked to working scientifically criteria for KS1.

Working Scientifically and retrieval practice KS1	<u>Working Scientifically KS1</u>	<u>Key knowledge KS1</u>
	<p>During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> ● asking simple questions and recognising that they can be answered in different ways ● observing closely, using simple equipment ● performing simple tests ● identifying and classifying ● using their observations and ideas to suggest answers to questions ● gathering and recording data to help in answering questions. 	<p><u>Plants</u></p> <p>Y1</p> <ul style="list-style-type: none"> ● identify and name a variety of common wild and garden plants, including deciduous and evergreen trees ● identify and describe the basic structure of a variety of common flowering plants, including trees. <p>Y2</p> <ul style="list-style-type: none"> ● observe and describe how seeds and bulbs grow into mature plants ● find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. <p><u>Animals, including humans</u></p> <p>Y1</p> <ul style="list-style-type: none"> ● identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals ● identify and name a variety of common animals that are carnivores, herbivores and omnivores ● describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) ● identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p>Y2</p> <ul style="list-style-type: none"> ● notice that animals, including humans, have offspring which grow into adults ● find out about and describe the basic needs of animals, including humans, for survival (water, food and air) ● describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. <p><u>Everyday Materials/ Use of everyday materials</u></p> <p>Y1</p> <ul style="list-style-type: none"> ● distinguish between an object and the material from which it is made ● identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ● describe the simple physical properties of a variety of everyday materials ● compare and group together a variety of everyday materials on the basis of their simple physical properties. <p>Y2</p> <ul style="list-style-type: none"> ● identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses ● find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <p><u>Seasonal Changes</u></p> <p>Y1</p> <ul style="list-style-type: none"> ● observe changes across the four seasons ● observe and describe weather associated with the seasons and how day length varies. <p><u>Living things and their habitats</u></p> <p>Y2</p> <ul style="list-style-type: none"> ● explore and compare the differences between things that are living, dead, and things that have never been alive ● identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other ● identify and name a variety of plants and animals in their habitats, including microhabitats ● describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

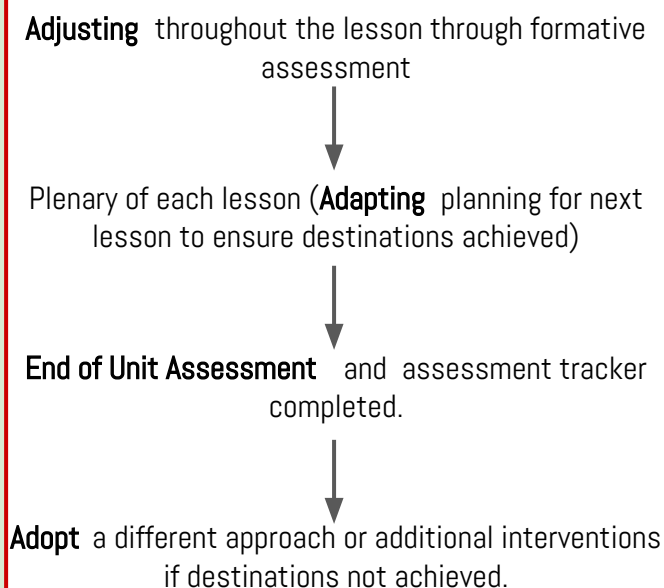


Science - Year 3 Autumn 2: Scheme of Learning

Forces and Magnets

Forces and Magnets	Focus - Key Questions	Links	Destinations (I will be able to ...)
	What is a force?	Prior learning in EYFS	<ul style="list-style-type: none"> Identify the forces acting on an object (<i>push, pull</i>) Name different types of force (<i>magnetic force, push, etc</i>) Identify forces that need contact and that do not need direct contact. Say when there is a push or pull acting on an object.
	What changes the strength of a magnet?		<ul style="list-style-type: none"> Identify different types of magnets. Predict which magnet will be strongest e.g biggest, etc. 
	Do magnets work on all materials?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Test my prediction in an experiment (<i>e.g. adding paper clips to different magnets.</i>) Record my results in a table and present them in a bar chart. Explain my results Make careful and systematic observations and take accurate measurements using standard units.
	What are magnetic poles?		<ul style="list-style-type: none"> Explain that magnets produce a force that attracts some materials. Use a magnet to separate materials that are magnetic and non-magnetic. Name some magnetic materials and non-magnetic materials.
	How do magnets work and how can I explain this?		<ul style="list-style-type: none"> Identify the poles of a magnet. Look at poles and say whether two magnets will attract or repel <i>e.g. N N, S S, S N, N S.</i> Explain that a compass always points north-south.
	What is friction? <i>(Learning progression: Year 5, Forces)</i>		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Identify differences, similarities or changes related to simple scientific ideas and processes.
	<ul style="list-style-type: none"> Identify materials that are attracted to magnets. Explain how magnets work in a context e.g. making a magnetic game, etc. 		
	<ul style="list-style-type: none"> Explain the force of friction. Make a prediction about which surfaces create the most friction for a toy car. 		
	<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Take measurements and record results on a table. Explain the results using my understanding of the force of friction. 		

Assessment in Science:

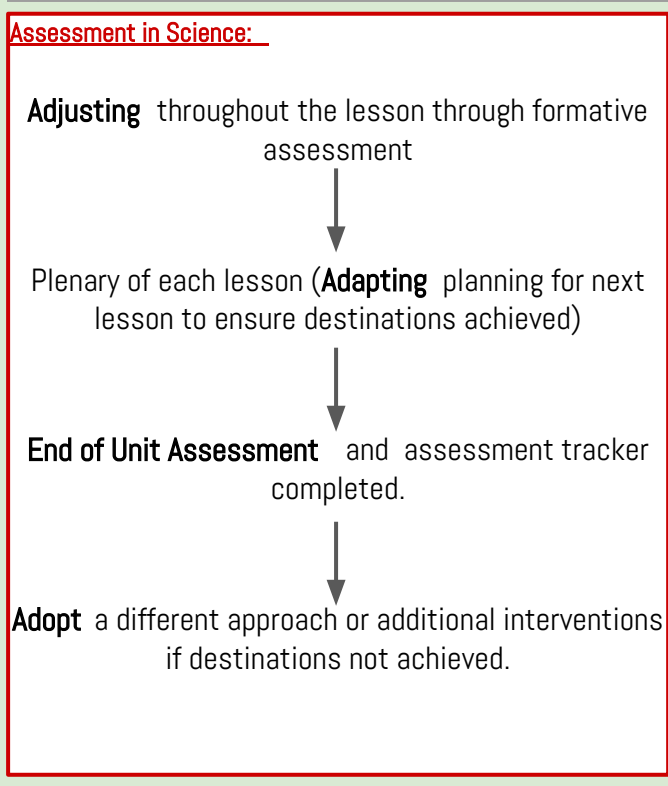


magnetic	An object that attracts to a magnet
non-magnetic	An object that is not attracted to a magnet.
magnetic field	The area around a magnet where there is a magnetic force which will pull the objects towards the magnet.
attract	to pull together
repel	To push away
poles	Where the magnetic force is the strongest
fair test	An experiment where two or more things are compared and only one thing changed.
conclusion	The result of an investigation or experiment that has taken place.
compare	Find similarities in two or more objects.

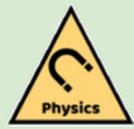


Science - Year 3 Spring 1: Scheme of Learning Animals, including Humans


Animals, including Humans	<u>Focus - Key Questions</u>	Links	<u>Destinations</u> (I will be able to....)
	What do humans and animals need to survive?	Whole School Theme: We Are Geographers - Could you survive in both a rainforest and a city? Reading: Paddington Bear	<ul style="list-style-type: none"> Explain the things that animals and humans need to survive and stay healthy (<i>food, etc including helping them to understand that animals cannot make their own food</i>) Identify food groups and sort foods into the relevant food groups Describe the nutrients provided by a range of foods
	What nutrients are in food and how much do we need?		<ul style="list-style-type: none"> Explain how different animals require a different balance of nutrients (<i>omnivores, herbivores, carnivores</i>) Make predictions about which foods will be high in certain nutrients (<i>saturated and unsaturated fats, salt, fibre, etc</i>)
	What is a skeleton and how are they different?		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Make predictions Find evidence from food labels to prove or disprove statements
	How do our skeletons support how we move?		<ul style="list-style-type: none"> Explain what vertebrates and invertebrates are and give some examples of them (<i>mammals, reptiles, amphibians, birds and fish are vertebrates and molluscs and arthropods are invertebrates.</i>) Sort animals according to their skeleton. Discuss the advantages and disadvantages of the different skeleton types (<i>hydrostatic skeleton, exoskeleton, endoskeleton</i>) Explore how animals with different skeletons explore Able to explain how skeletons support and protect
	What are muscles and how do they work?		<ul style="list-style-type: none"> Identify some parts of a human skeleton on a diagram (<i>skull, ribcage, spine, etc</i>)
	<u>Working Scientifically:</u> <ul style="list-style-type: none"> Explain how to make a fair test Take careful measurements and record these on a table Draw conclusions from the results of an investigation 		
	<ul style="list-style-type: none"> Observe and describe how muscles work in pairs (<i>biceps, triceps, contract, shorten, relax, lengthen</i>) Make and explain how a scientific model of the upper arm works 	<u>Working Scientifically:</u> <ul style="list-style-type: none"> Use some scientific words in my discussions about bones and muscles (<i>skeletal muscles, biceps, triceps, etc</i>) 	



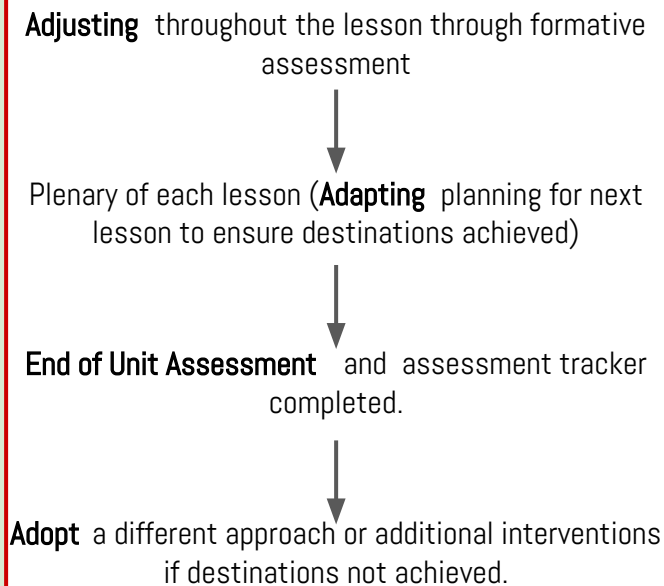
joints	The places in your body where bones meet and which give support and allow movement.
Internal organs	The parts inside our body which help us to live, such as the heart and brain.
skeleton	The hard structure that supports the body of a living thing.
bones	The individual parts of a skeleton .
muscles	Soft tissues in the body that contract and relax to cause movement
nutrients	Substances that living things need to stay alive and healthy
energy	Strength to be able to move and grow
healthy	In a good physical and mental condition
fair test	An experiment where two or more things are compared and only one thing changed.



Science - Year 3 Spring 2: Scheme of Learning Light

Focus - Key Questions	Links	Destinations (I will be able to...)
How does light help us see objects?	Whole School Theme: We Are Scientists Reading: 'On A Beam of Light' - Einstein	<ul style="list-style-type: none"> Identify a range of light sources e.g. <i>which are light sources (candle, torch, fire, sun) and which are not (boots, eyes, etc) - Tricky ones - Moon, window & mirror (Not light sources & why)</i> Explain that the dark is caused by an absence of light. Explain that light is needed to be able to see things.
Which materials are most reflective?		<ul style="list-style-type: none"> Explain reflection. Identify reflective materials Select the most reflective material for a specific purpose. 
How do mirrors work? <i>(Learning progression: Year 6, Light)</i>		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Identify differences, similarities or changes related to simple scientific ideas and processes.
Why do we need to stay safe in the sun?		<ul style="list-style-type: none"> Explain why mirrors are good reflectors. Use a mirror to reflect light onto different objects.
How are shadows formed?		<ul style="list-style-type: none"> Explain the benefits and the dangers of the sun. Understand UV light and its dangers. (<i>ultraviolet light - is invisible to humans but we can see and feel its effects</i>) Describe ways to protect your eyes from the sun.
How do shadows change?		<ul style="list-style-type: none"> Explain that light travels in straight lines. Use the terms opaque, transparent and translucent correctly. Sort materials based on the above properties. Investigate shadows e.g. are shadows formed through opaque, transparent or translucent materials?
		<ul style="list-style-type: none"> Explain how a shadow is formed Find patterns in the way the size of shadows change. <p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Plan and set up an investigation to investigate the ways shadows change size. (<i>e.g. the closer the object is to the light source the bigger the shadow</i>) Observe patterns in the way shadows change size. Explain the patterns found using scientific understanding. Make careful and systematic observations and take accurate measurements using standard units. Ask relevant questions and use different types of scientific enquiry to answer them, including comparative and fair tests.

Assessment in Science:



transparent	Describes objects that let light travel through them easily, meaning that you can see through the object
translucent	Describes objects that let some light through, but scatter the light so we can't see through them properly
opaque	Describes objects that do not let any light pass through them
shadow	An area of darkness where light has been blocked
reflection	The process where light hits the surface of an object and bounces back into your eyes
reflective	A word to describe something which reflects light well
reflect	To bounce off
dark	Dark is the absence of light
light	A form of energy that travels in a wave from a source.

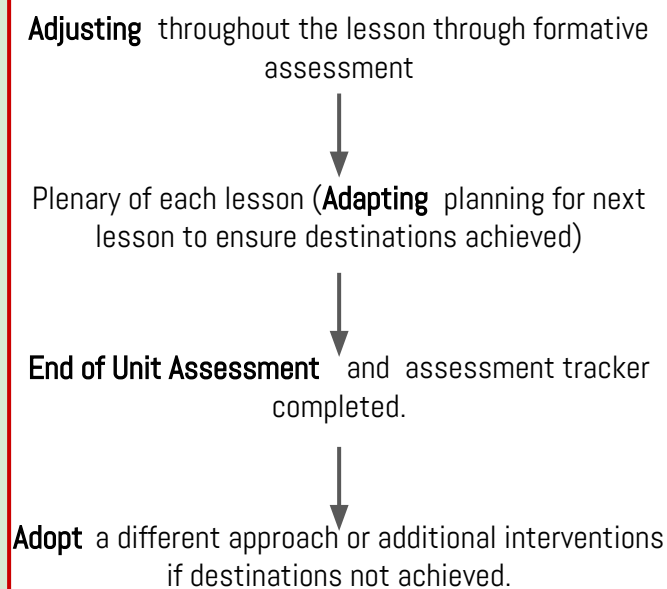


Science - Year 3 Summer 1: Scheme of Learning

Rocks

Focus - Key Questions	Links	Destinations (I will be able to ...)
What are the different types of rock?	Whole School Theme: We are Historians History: Stone, Bronze & Iron Age	<ul style="list-style-type: none"> Name the three different types of rocks (<i>igneous, sedimentary & metamorphic</i>) Explain the difference natural and human-made rocks Use the appearance of rocks to group and compare them
How can we group different rocks?		<ul style="list-style-type: none"> Name the different types of rocks Use the properties of group them
What is a fossil?		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Handle and examine rocks carefully Use systematic observations to identify the properties of rocks
What is a palaeontologist and how have they changed our understanding of prehistoric animals?		<ul style="list-style-type: none"> Explain how fossils are formed and order the steps Explain the difference between a bone and a fossil
How is soil made?		<ul style="list-style-type: none"> Explain what a palaeontologist does Understand why Mary Anning's fossil findings were important Describe how palaeontology has changed our understanding of prehistoric animals
Can water flow through all types of soil? (permeability)		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Explain that soil is composed of different things (<i>air, water, mineral & organic materials</i>) Describe the 4 processes of soil formation (<i>Additions, losses, translocations & transformations</i>)
		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Identify how to make careful observations Observe how much water has filtered through different types of soil Use the same equipment and length of time for each observation Record observations accurately in a table Use simple scientific language accurately

Assessment in Science:



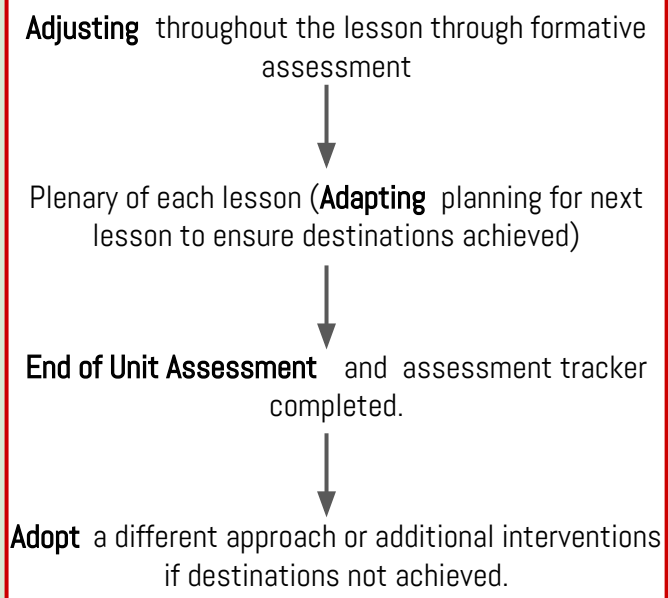
fossilisation	The process by which fossils are made
palaeontology	The study of fossils
erosion	When water, wind or ice wears away land
Metamorphic rock	Rock that started out as igneous or sedimentary rock but changed due to being exposed to extreme heat or pressure
Sedimentary rock	Rock that has been formed by layers of sediment being pressed down hard and sticking together. You can see the layers of sediment in the rock.
Igneous rock	Rock that has been formed from magma or lava
impermeable	Does not all liquids to pass through it
permeable	Allows liquids to pass through it
sediment	Natural solid material that is moved and dropped off in a new place by water or wind, e.g. sand



Science - Year 3 Summer 2: Scheme of Learning Plants

Plants	Focus - Key Questions	Links	Destinations (I will be able to...)
	What are the different parts of a plant?	Whole School Theme: So we can change the world	<ul style="list-style-type: none"> Name the different parts of a plant (<i>Flower, stem, roots, leaves</i>) Explain the jobs that the different parts of the plants do.
	What do plants need to grow well? - Investigate		<ul style="list-style-type: none"> Think about what plants need to grow well (<i>Oxygen, water, sunlight/warmth, nutrients</i>)
	What do plants need to grow well? - What I have found out		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Think of a question to investigate Predict what will happen in an investigation Plan what needs to happen to set up an investigation and set it up carefully
	How is water transported in plants?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Describe what I have observed Record what I have observed Answer a question using observations from my investigation Think about whether my prediction was accurate Explain my results using scientific language
	What is pollination?		<ul style="list-style-type: none"> Explain the function of the stem Explain how water is transported in a plant
	What is the life cycle of a plant?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Set up a comparative investigation Suggest ways to find answers Make a prediction Make a conclusion
	<ul style="list-style-type: none"> Identify the different parts of the flower (<i>petal, pollen, stamen, stigma, style</i>) Explain what each part of the flower does Explain the process of pollination Explain how pollination leads to fertilisation 		
	<ul style="list-style-type: none"> Understand the process of seed dispersal & seed formation Understand the process of pollination, fertilisation and germination Order the different stages of the life cycle of a flowering plant 		

Assessment in Science:



pollination	When pollen (a fine powdery substance produced by a flowering plant) is moved from the male anther of a flower to the female stigma
germination	When a seed starts to grow
pollinator	Animals or insects which carry pollen between plants. Examples include birds, bees and bats.
Seed dispersal	A method of moving the seeds away from the parent plant so that the seeds have the best chance of survival
flowers	These make seeds grow into new plants. Their petals attract pollinators to the plant
stem	This holds the plant and carries water and nutrients from the soil to leaves. A trunk is the stem of a tree.
roots	These anchor the plant into the ground and absorb water and nutrients from the soil
nutrients	These substances are needed by living things to grow and survive. Plants get nutrients from the soil and also make their own food in their leaves

Science - Year 4 Autumn 1: Scheme of Learning What did we learn in year 3 - Retrieval and consolidation

As part of transition into Year 4, Year 3 Science assessments will be shared and areas of weaker knowledge will be revisited along with an opportunity to continue working on the working scientifically destinations.

Teachers will use this data to identify gaps in knowledge and skills to plan an appropriate sequence of lessons retrieving prior learning in the context of an investigation linked to working scientifically criteria for Year 3 & 4.

Working Scientifically and retrieval practice Year 3	<u>Working Scientifically Year 3 & 4</u>	<u>Key knowledge Year 3</u>
	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> ● asking relevant questions and using different types of scientific enquiries to answer them ● setting up simple practical enquiries, comparative and fair tests ● making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ● gathering, recording, classifying and presenting data in a variety of ways to help in answering questions ● recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● identifying differences, similarities or changes related to simple scientific ideas and processes ● using straightforward scientific evidence to answer questions or to support their findings. 	<p><u>Forces and Magnets</u></p> <p><u>Animals Including Humans</u></p> <p><u>Light</u></p> <p><u>Rocks</u></p> <p><u>Plants</u></p>

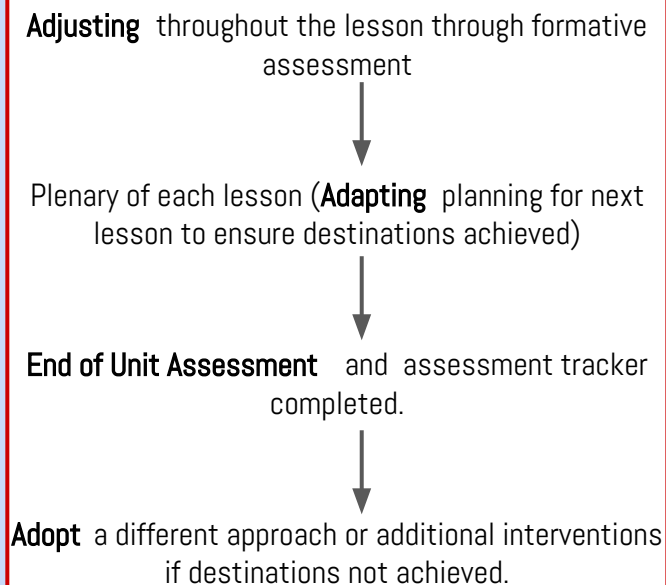


Science - Year 4 Autumn 2: Scheme of Learning

Sound

Sound	Focus - Key Questions	Links	Destinations (I will be able to ...)
	How are sounds made?	Whole School Theme: We are Artists Art: Kandinsky Computing: Making Music Whole School: Singing & Y4 Brass Instruments	<ul style="list-style-type: none"> Recognise sounds are made by causing a vibration (hit, pluck, bang, blow) Explain a vibration is a rapid movement back and forth. Associate some sounds with something vibrating.
	How does sound travel?		<ul style="list-style-type: none"> Recognise that vibrations travel through a medium to our ears. Explain the vibrations move the particles within the medium. Recognise that light travels faster than sound.
	What is pitch?		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Record data using tables. Drawing conclusions and making predictions based on data. Carrying out a fair test.
	What is volume?		<ul style="list-style-type: none"> Recognise the pitch can change. State the tighter the string/skin, the quicker the vibrations and the higher the sound Explain that instruments can play the same note, but at a different pitch.
	How do we protect our ears from sound?		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Carrying out a comparative test. Making accurate measurements - length of tube.
	What happens to the sound as we get further away from it?		<ul style="list-style-type: none"> Recognise volume is how loud a sound is. Recognise the volume changes with the energy used to produce it - the bigger the pluck, the bigger the vibrations the bigger the amplitude, the louder the sound.
	<ul style="list-style-type: none"> State that very loud noises can damage the delicate parts inside your ears. 		
		<ul style="list-style-type: none"> Explain that sound is a type of energy. The louder the sound the greater the energy – bigger the vibration and wave. As the sound wave travels, it loses energy, the vibrations become smaller and the sound quieter until there are no vibrations at all. Explain that wind disrupts the sound wave and it loses energy quicker. This makes sound harder to hear on a windy day. State that an echo is a reflection of sound 	
		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Record data using tables. Recording measurements in a table and using data to draw conclusions. Carrying out a fair test. 	

Assessment in Science:



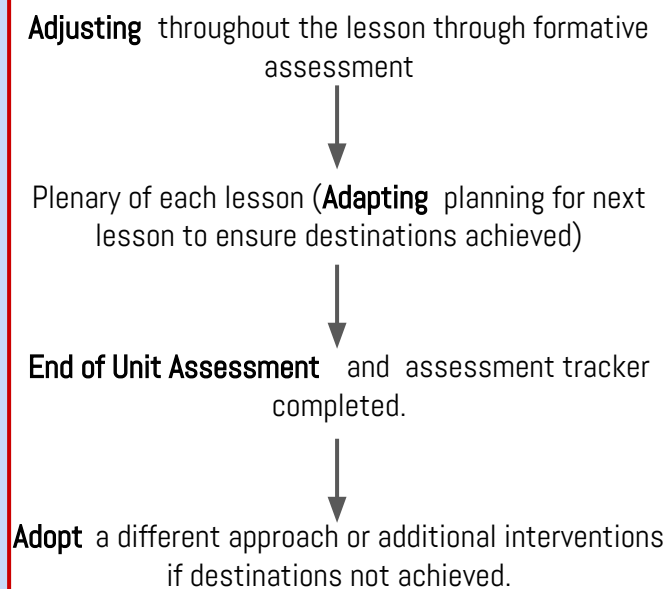
<u>sound</u>	energy that travels in waves through air, water, or other substances, and can be heard.
<u>vibration</u>	rapid back-and-forth movement.
<u>insulation</u>	substance that stops heat, electricity or sound from passing.
<u>volume</u>	how loud or quiet the sound is
<u>echo</u>	a sound that has been reflected
<u>pitch</u>	describes how low or high a sound is.
<u>accurate</u>	correct in all details
<u>sound source</u>	the object that creates the vibration
<u>frequency</u>	the number of vibrations per second



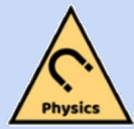
Science - Year 4 Spring 1: Scheme of Learning States of Matter

States of Matter	Focus - Key Questions	Links	Destinations (I will be able to)
	What are the different states of matter?	Whole School Theme: We are Geographers Geography: Desert Biome History: Egyptians	<ul style="list-style-type: none"> Recognise whether materials are solid, liquid or gas. Identify the differences in solids, liquid and gas particles. Describe the properties of solids, gases and liquids.
	Can materials change state?		<ul style="list-style-type: none"> Recognise some materials can change state. Explain the higher the temperature the faster the change of state. Identify materials that melt at different temperatures. Understand how heat can cause solids to change to liquids and vice versa
	Can water exist in all three states?		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Set up a fair test Make careful and systematic observations
	How do wet clothes dry?		<ul style="list-style-type: none"> Identify the boiling point of water. Identify the freezing point of water. Identify the melting point of ice.
	What is the water cycle?		<ul style="list-style-type: none"> Explain the effect of temperature on evaporation <i>e.g. warmer the room, the quicker the clothes will dry.</i> Explain what evaporation is. Understand that a breeze helps water to evaporate quicker.
		<ul style="list-style-type: none"> Identify different stages of water cycle Explain the part played by evaporation and condensation in the water cycle. 	

Assessment in Science:



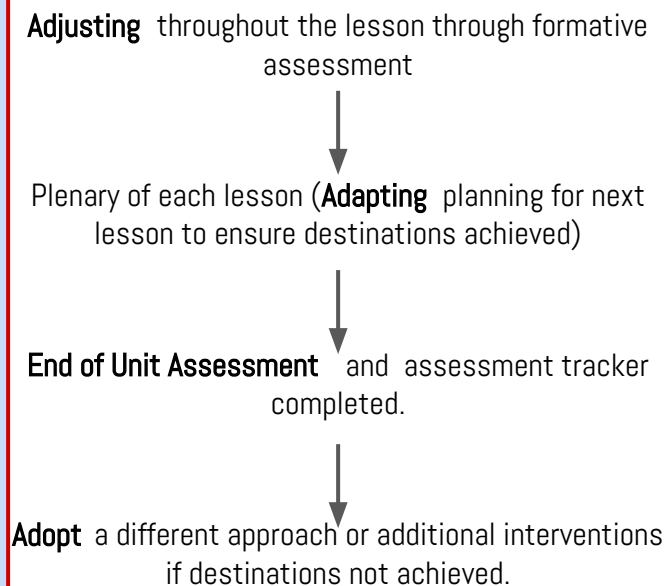
<u>condensation</u>	The process of turning a gas into a liquid.
<u>evaporation</u>	The process of turning liquid into gas.
<u>water vapour</u>	Water in a gaseous state.
<u>state of matter</u>	Describes the arrangement, movement and energy of particles in a substance.
<u>cooling</u>	The process of removing heat.
<u>heating</u>	The process of adding heat.
<u>solid</u>	A material with a fixed shape and volume
<u>gas</u>	A substance that has no fixed shape and is free to fill any space.
<u>liquid</u>	A substance that flows freely and takes the shape of the container.



Science - Year 4 Spring 2: Scheme of Learning Electricity

Electricity	Focus - Key Questions	Links	Destinations (I will be able to ...)
	Why do we need electricity?	<i>Whole School Theme: We are Scientists</i> <i>Reading: Clockwork</i> <i>DT: Build a toy using electrical circuits</i>	<ul style="list-style-type: none"> Identify common appliances that run on electricity e.g. <i>toasters, fridges, etc</i> Name some appliances that run by battery.
	How does electricity work?		<ul style="list-style-type: none"> Name basic parts of a simple circuit (<i>cells, wires, bulbs, switches, buzzers</i>) Construct a simple electrical circuit.
	Will it work?		<ul style="list-style-type: none"> Identify whether or not a lamp/buzzer will light in a simple circuit based on whether they are part of a complete loop with a battery. Discuss why a lamp will not light (<i>switch open, etc</i>) Correct the circuit to make the lamp light.
	Why do we need switches and how do they work?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Use evidence to answer questions.
	What materials are good conductors?		<ul style="list-style-type: none"> Know what a switch does in a circuit.
	What materials are good insulators?		<ul style="list-style-type: none"> Recognise some common conductors. Discuss why we use them.
What materials are good insulators?	<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Set up practical and fair test. Use results to draw conclusions and make predictions for new materials. 		
		<ul style="list-style-type: none"> Recognise some common insulators. Discuss why we use them. 	
		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Set up practical and fair test. Report on findings from enquiries. 	

Assessment in Science:



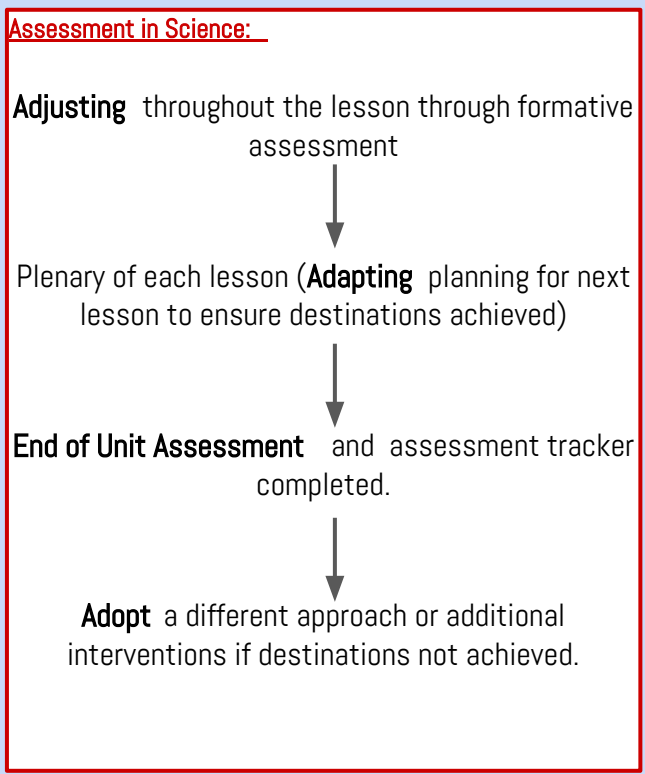
<u>conductor</u>	A material that allows the flow of electricity, heat or sound.
<u>insulator</u>	A material that stops heat, electricity and sound from passing.
<u>circuit</u>	A path which electrons from a voltage or current flow.
<u>component</u>	Part of a larger whole.
<u>cell</u>	A device used to generate electricity.
<u>mains electricity</u>	Electricity supplied to a building through wires.
<u>battery</u>	2 or more cells in parallel series.
<u>electricity</u>	A form of energy that is carried through wires and used to operate machines, lights etc.
<u>switch</u>	A component within an electrical circuit which enables the flow of electricity to be turned on or off.



Science - Year 4 Summer 1: Scheme of Learning

Animals including Humans

Animals including humans	Focus - Key Questions	Links	Destinations (I will be able to ..)
	How can we keep teeth healthy?	Whole School Theme: We are Historians	<ul style="list-style-type: none"> Explain what tooth decay is Explain how to look after your teeth
	Why are our teeth different shapes?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Decide what to change, what to keep the same and what to observe in an investigation Plan and set up an investigation
	What is the digestive system?		<ul style="list-style-type: none"> Name the different types of teeth found in humans (<i>canine, incisor, molar, premolar</i>) Explain the function (job) of the different teeth types
	What is the process of digestion?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Draw conclusions about keeping teeth healthy Make observations and recordings of teeth
	What is a food chain and how do habitats impact food chains?		<ul style="list-style-type: none"> Name the main parts of the digestive system (<i>stomach, small & large intestines, oesophagus, rectum, anus</i>) Say where the digestive system organs are located in the body Explain the function (job) of each part of the digestive system
	How and why are animals teeth different?		<ul style="list-style-type: none"> Order the steps in the digestion process using my knowledge of each part and their function (job) Summarise the key stages of digestion using the correct scientific vocabulary
			<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Use a scientific model and secondary source to explain the process of digestion
		<ul style="list-style-type: none"> Construct a food chain for a given habitat Identify the producer, predator and prey in a food chain Interpret what a food chain is telling us 	
		<ul style="list-style-type: none"> Identify omnivores, carnivores and herbivores by their teeth (link to knowledge about human teeth) Compare similarities and differences between the teeth of different animals Link what I observe about an animal's teeth with where they are on the food chain 	



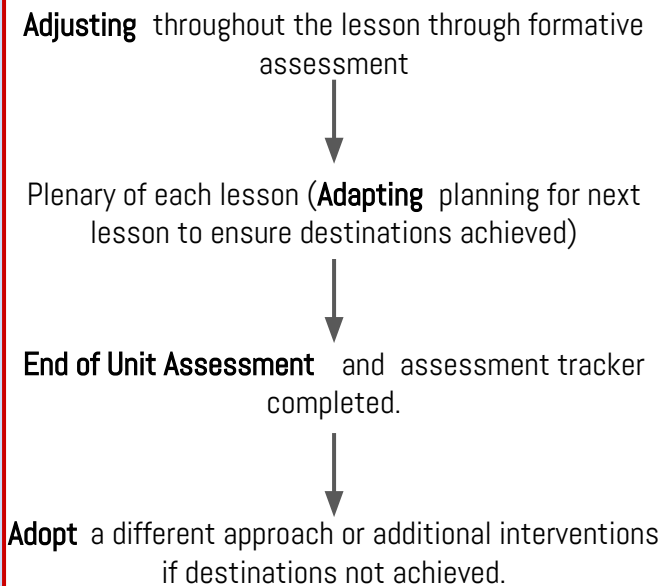
<u>oesophagus</u>	A muscular tube which moves food from the mouth to the stomach.
<u>Small intestine</u>	Part of the intestine where nutrients are absorbed into the body.
<u>Large intestine</u>	Part of the intestine where water is absorbed from remaining waste food. Faeces are formed in the large intestine
<u>producer</u>	An organism, such as a plant, that produces its own food
<u>predator</u>	An animal that hunts and eats other animals
<u>digest</u>	Break down food so it can be used by the body
<u>prey</u>	An animal that gets hunted and eaten by another animal.
<u>stomach</u>	An organ in the digestive system where food is broken down with stomach acid and by being churned around
<u>teeth</u>	Hard structures in the mouth that help with biting and chewing food.



Science - Year 4 Summer 2: Scheme of Learning Living Things and their Habitats

Living things and their Habitats	Focus - Key Questions	Links	Destinations (I will be able to ...)	
	How can we group living things to help understanding?	Whole School Theme: So we can change the world Reading: Floodlands	<ul style="list-style-type: none"> Sort living things into groups Generate criteria to sort living things Sort living things using venn diagrams and carroll diagrams Awareness of the 7 processes of living (<i>movement, respiration, growth, reproduction, excretion, nutrition and sensitivity</i>) 	
	What are the similarities and differences that can be identified in vertebrates?		<ul style="list-style-type: none"> Generate questions about animals Use questions to sort animals in a key See similarities and differences between vertebrates Use these to identify vertebrate groups Explain what a vertebrate is 	
	What helps to identify an invertebrate?		<ul style="list-style-type: none"> Answer questions in a key by looking closely at invertebrates Use a key to name invertebrates I have found Identify invertebrates by looking at their characteristics 	
	<u>Working Scientifically:</u>			
	How can we show the characteristics of living things?		<ul style="list-style-type: none"> Identify the characteristics of living things Use the characteristics of living things to sort them using a classification key Create a classification key to show understanding of characteristics of living things 	
	What are the positive and negative changes to local habitats?		<ul style="list-style-type: none"> Identify dangers to wildlife in the local environment Suggest how to have a positive effect on the local environment 	
<u>Working Scientifically:</u>				
What environmental dangers that impact endangered species?	<ul style="list-style-type: none"> Name some endangered species Say how changes to the environment have affected endangered species 			
<u>Working Scientifically:</u>				
		<ul style="list-style-type: none"> Write a report about information I have gathered through research Present my findings 		

Assessment in Science:



classification	This is where plants or animals are placed into groups according to their similarities
vertebrates	Animals with a backbone
invertebrates	Animals without a backbone
Endangered species	A plant or animal where there are not many of their species left and scientists are concerned that the species may become extinct
habitat	The specific area or place in which particular animals or plants may live
sensitivity	The way living things react to changes in their environment
environment	An environment contains many habitats and these include areas where there are both living and non-living things
nutrition	The process of obtaining food to provide living things with energy to live and stay healthy
characteristics	The distinguishing features or qualities that are specific to a species

Science - Year 5 Autumn 1: Scheme of Learning
What did we learn in year 4 - Retrieval and consolidation

As part of transition into Year 5, Year 4 Science assessments will be shared and areas of weaker knowledge will be revisited along with an opportunity to continue working on the working scientifically destinations.

Teachers will use this data to identify gaps in knowledge and skills to plan an appropriate sequence of lessons retrieving prior learning in the context of an investigation linked to working scientifically criteria for Year 3 & 4.

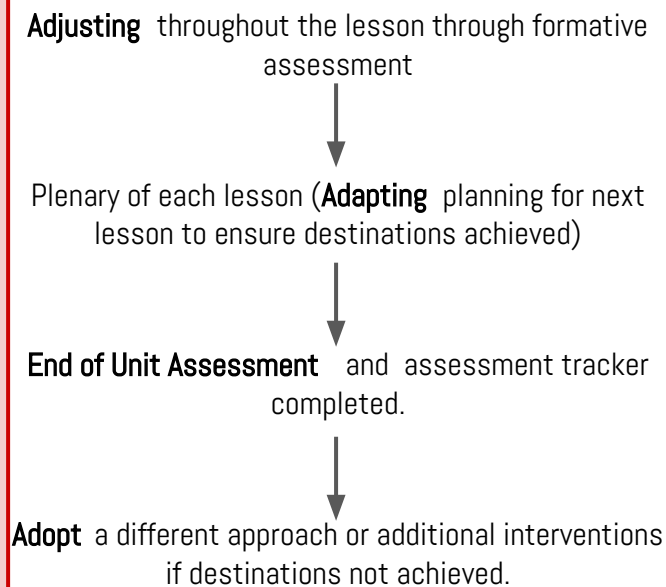
Working Scientifically and retrieval practice Year 4	<u>Working Scientifically Year 3 & 4</u>	<u>Key knowledge Year 4</u>
	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> ● asking relevant questions and using different types of scientific enquiries to answer them ● setting up simple practical enquiries, comparative and fair tests ● making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ● gathering, recording, classifying and presenting data in a variety of ways to help in answering questions ● recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● identifying differences, similarities or changes related to simple scientific ideas and processes ● using straightforward scientific evidence to answer questions or to support their findings. 	<p><u>Sound</u></p> <p><u>States of Matter</u></p> <p><u>Electricity</u></p> <p><u>Animals including Humans</u></p> <p><u>Living things and their habitats</u></p>



Science - Year 5 Autumn 2: Scheme of Learning Animals Including Humans

Focus - Key Questions	Links	Destinations (I will be able to ...)
Animals Including Humans	Whole School Theme: We Are Artists RSE/PSHE	<ul style="list-style-type: none"> Order the stages of human development Name the 6 stages of human development (<i>prenatal, infancy/childhood, adolescence, early adulthood, middle adulthood, late adulthood/old age</i>) Explain the changes that occur during the stages of human development
What are the stages of human development?		<ul style="list-style-type: none"> Demonstrate understanding of how babies grow in height and weight
How do babies grow?		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Compare graph types and select which is most appropriate for my data Present data and explain which is the most appropriate data and why
What changes happen during puberty?		<ul style="list-style-type: none"> Describe the main changes that occur during puberty Give reasons why changes occur during puberty Analyse similarities and differences between how boys and girls experience puberty (Linked to Year 5 RSE)
What changes take place in old age?		<ul style="list-style-type: none"> Explain the main changes that take place in old age Distinguish between facts and myths about old age
What do you think gestation is? <i>(Learning progression: Year 3, Plants)</i>		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Report findings in oral form or written explanations Choose how best to report my findings
What is life expectancy?	<u>Working Scientifically:</u> <ul style="list-style-type: none"> Create bar and line graphs to record data Suggest the best way to record complex data Compare two datasets Analyse findings Demonstrate understanding the different relationships between variables e.g. gestation period and life expectancy 	

Assessment in Science:



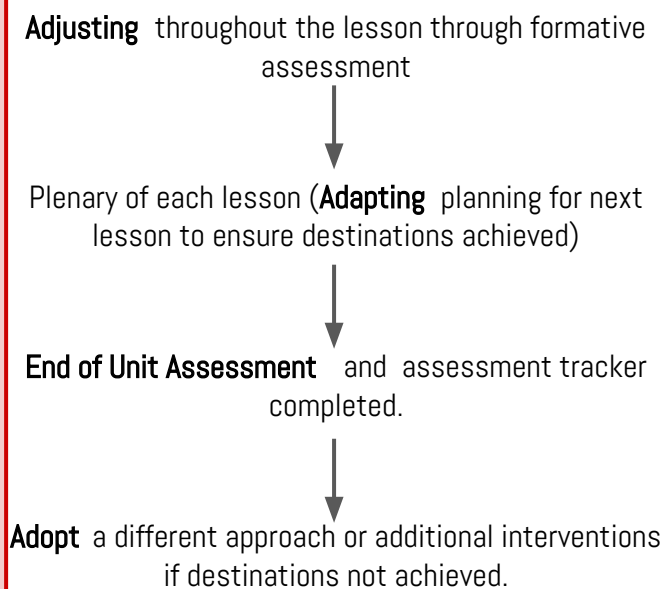
adolescence	The social and emotional stage of development between childhood and adulthood
menstruation	When the female body discharges the lining of the uterus. This happens approximately once a month
puberty	The physical stage of development between childhood and adulthood
gestation	The process or time when prenatal development takes place before birth
fertilisation	The process of the male and female sex cells fusing together
reproduce	To produce young
Life cycle	The changes a living thing goes through, including reproduction



Science - Year 5 Spring 1: Scheme of Learning Properties and Changes of Materials

Properties and Changes of Materials	Focus - Key Questions	Links	Destinations (I will be able to...)
	What are the different properties of materials?	Whole School Theme: We Are Geographers	<ul style="list-style-type: none"> Describe a materials properties (<i>natural, human-made, hard, flexible, translucent, etc</i>) Explain the uses of different materials based on their properties Sort and compare materials based on their properties
	Which materials are the best thermal conductors?		<ul style="list-style-type: none"> Identify materials that are thermal conductors Explain what thermal conductors are Give reasons for the uses of thermal conductors
	Which materials are the best thermal insulators?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Plan and carry out an investigation into thermal conductor
	What is dissolving?		<ul style="list-style-type: none"> Identify materials that are thermal insulators Explain what thermal insulators are Give reasons for the uses of thermal insulators
	How can mixtures be separated?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Carry out an investigation to find the best thermal insulator
	What are irreversible changes?		<ul style="list-style-type: none"> Describe dissolving and the subsequent solution Explain the difference between melting and dissolving (<i>melting involves only a solid, where dissolving involves a liquid and another material, etc</i>) Identify materials that will dissolve in water Investigate factors which affect the speed of dissolving Understand what changes are reversible
	<ul style="list-style-type: none"> Identify different ways materials can be mixed together Use sieving, filtering, evaporating and other processes to separate mixtures of materials Know when to use which processes to separate mixtures 		
	<ul style="list-style-type: none"> Identify and explain irreversible chemical changes Describe the new materials created in irreversible chemical changes 		

Assessment in Science:



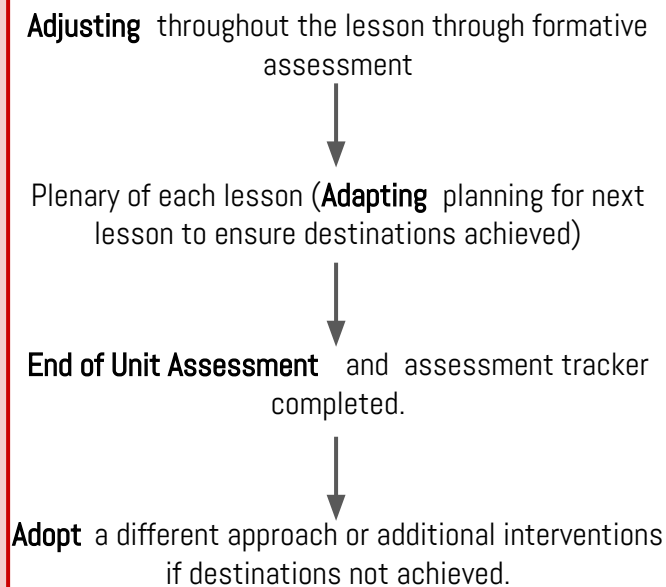
irreversible	Cannot change back or undo
insulator	An insulator is a material that does not let heat or electricity travel through them. Wood and plastic are both thermal and electrical insulators.
conductor	A conductor is a material that heat or electricity can easily travel through. Most metals are both thermal conductors (they conduct heat) and electrical conductors (they conduct electricity)
dissolve	When a material mixes into a liquid to make a transparent (see-through) liquid called a solution
evaporating	When a liquid turns into a gas or vapour
melting	The process of heating a solid until it changes into a liquid
liquids	This state of matter can flow and take the shape of the container because the particles are more loosely packed than solids and can move around each other. Examples of liquids include water and milk
solids	One of the three states of matter. Solid particles are very close together, meaning solids, such as wood and glass, hold their shape
materials	The substance that something is made out of, e.g. wood, plastic, metal
solution	Is a mixture of two or more substances that stays evenly mixed



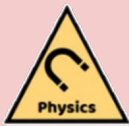
Science - Year 5 Spring 2: Scheme of Learning Earth & Space

Earth & Space	Focus - Key Questions	Links	Destinations (I will be able to ...)	
	How do we know the sun, earth and moon are spherical?	Whole School Theme: We Are Scientists	<ul style="list-style-type: none"> Describe a sphere Describe the Earth, Moon and Sun as spherical Identify scientific evidence that has been used to support or refute ideas 	
	How do the planets move in our solar system?		<ul style="list-style-type: none"> Name the planets in the solar system Place the planets in the solar system in the correct order Describe some features of the planets 	
	What is the geocentric and the heliocentric model?		<ul style="list-style-type: none"> Explain how the planets orbit the sun Distinguish between heliocentric and geocentric ideas of planetary movement Explain theories of planetary movement in the solar system using evidence 	
	<u>Working Scientifically:</u>			
	How do we get day and night?		<ul style="list-style-type: none"> Identify scientific evidence that has been used to support or refute ideas 	
	How do we get day and night?		<ul style="list-style-type: none"> Explain that day and night is due to the rotation of the Earth Use evidence to explain day and night 	
Why does Australia celebrate Christmas in the summer? <i>(Learning progression: KS1, Seasons)</i>	<ul style="list-style-type: none"> Explain how seasons work due to the movement of the Earth in relation to the sun (<i>axis, southern hemisphere, northern hemisphere, equator</i>) Predict and explain why night and day occur at different times in different places on Earth. 			
<u>Working Scientifically:</u>				
How does the moon move in space?	<ul style="list-style-type: none"> Report, present and explain findings 			
	<ul style="list-style-type: none"> Explain how the Earth and Moon move relative to the Sun 			

Assessment in Science:



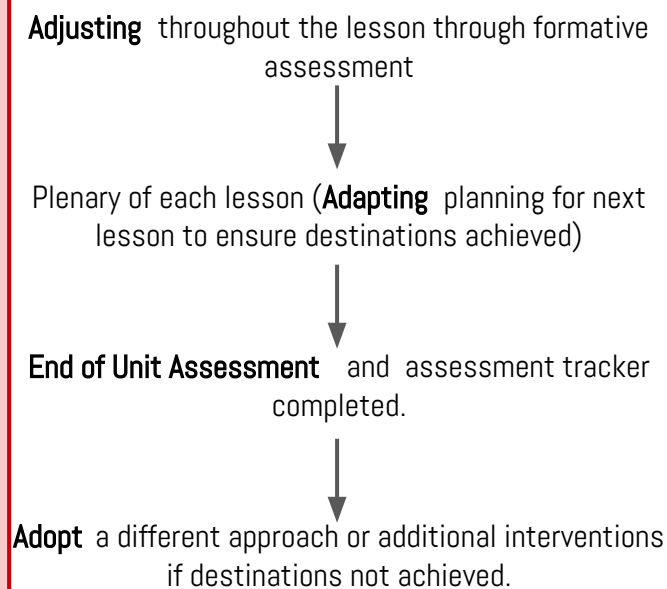
Heliocentric model	The structure of the Solar System where the planets orbit around the Sun
Geocentric model	A belief people used to have that other planets and the sun orbited around the Earth
axis	An imaginary line that a body rotates around. E.g. Earth's axis (imaginary line) runs from the North pole to the South Pole
astronomer	Someone who studies or is an expert in astronomy (space science)
orbit	To move in a regular, repeating curved path around another object
sphere	A round 3D shape in the shape of a ball
planet	A large object, round or nearly round, that orbits a star
moon	A natural satellite which orbits Earth or other planets
sun	A huge star that Earth and the other planets in our solar system orbit around



Science - Year 5 Summer 1: Scheme of Learning Forces

Forces	Focus - Key Questions	Links	Destinations (I will be able to ...)
	What forces act upon objects?	Whole School Theme: We Are Historians	<ul style="list-style-type: none"> Identify and explain the different forces acting on objects (<i>pushes, pulls, gravity, air resistance, friction, water resistance, buoyancy, etc</i>)
	What is gravity? <i>(Learning progression: Year 5, Spring 2, Earth and Space)</i>		<ul style="list-style-type: none"> Explain the effect of gravity on unsupported objects Explain Isaac Newton's role in developing the theory of gravity Accurately measure the force of gravity on objects (<i>Newton meter</i>)
	What is the effect of air resistance?		<ul style="list-style-type: none"> Explain how air resistance affects moving objects
	What is the effect of water resistance?		<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Plan and conduct an investigation into the effects of air resistance
	What is the effect of friction?		<ul style="list-style-type: none"> Explain the effects of water resistance Identified streamline shapes Understand how to minimise the effect of water resistance
	How do different mechanisms use forces to work?		<ul style="list-style-type: none"> Explain the effects of friction on a moving object Investigate the effects of friction created by different materials
	<p><u>Working Scientifically:</u></p> <ul style="list-style-type: none"> Recognise and control variables in an investigation 		
	<ul style="list-style-type: none"> Explain how different mechanisms work (<i>e.g. levers, pulleys and gears, allow a smaller force to have a greater effect</i>) Investigate a simple mechanisms 		

Assessment in Science:



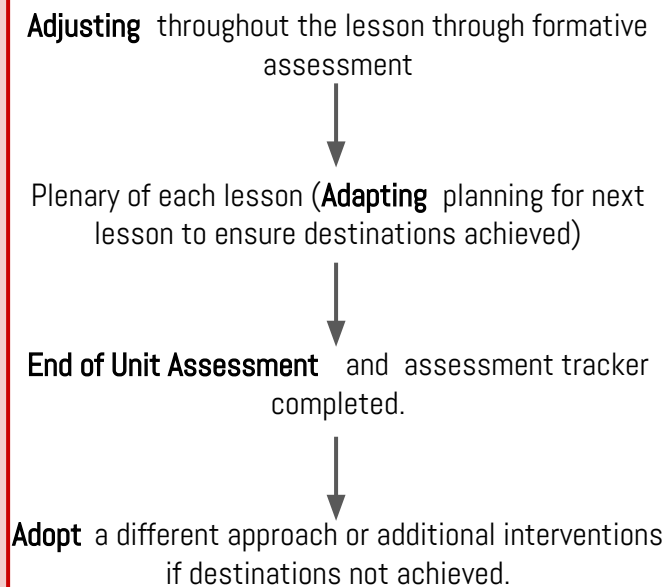
Water resistance	A type of friction caused by water pushing against any moving object
Air resistance	A type of friction caused by air pushing against any moving object
upthrust	A force that pushes objects up, usually in water
buoyancy	An object is buoyant if it floats. This is because the weight of the object is equal to the upthrust
streamlined	When an object is shaped to minimise the effects of air and water resistance
mechanism	Mechanisms are simple machines with moving parts that change input forces and movement into a set of useful output forces. Examples of mechanism are pulleys, gears and levers
friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other
gravity	A pulling force exerted by the Earth (or anything else which has mass)
forces	Pushes or pulls



Science - Year 5 Summer 2: Scheme of Learning Living Things and Their Habitats

Living Things and Their Habitats	Focus - Key Questions	Links	Destinations (I will be able to ...)
	How do some plants reproduce? - Part 1 <i>(Learning progression: Year 3, Plants)</i>	Whole School Theme: So we can change the world	<ul style="list-style-type: none"> Explain the difference between sexual and asexual reproduction Identify the function of the parts of a flower Describe ways that plants are pollinated in order to reproduce
	How do some plants reproduce? - Part 2		<ul style="list-style-type: none"> Describe asexual reproduction in plants Identify advantages and disadvantages to sexual and asexual reproduction in plants Explain different ways to make new plants
	What are the life cycles of mammals?		<ul style="list-style-type: none"> Describe the process of reproduction in mammals Describe different types of mammals (<i>Placentals, Monotremes & Marsupials</i>) Describe and compare the life cycles of different mammals
	Who was Jane Goodall and what did she discover?		<ul style="list-style-type: none"> Describe Jane Goodall's work with chimpanzees Explain why chimpanzees are endangered
	What is metamorphosis?		<ul style="list-style-type: none"> Explain metamorphosis and give examples (<i>butterfly / frog</i>) Describe the life cycles of amphibians and insects Identify similarities and differences between the life cycles of amphibians and insects
	What are the similarities and differences of life cycles?		<ul style="list-style-type: none"> Identify the stages of a bird's life cycle Describe the similarities and differences between different plants' and animals' life cycles

Assessment in Science:



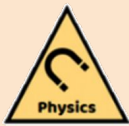
Asexual reproduction	One parent is needed to create an offspring, which is an exact copy of the parent
Sexual reproduction	Two parents are needed to make offspring which are similar but not identical to either parent
metamorphosis	An abrupt and obvious change in the structure of an animal's body and their behaviour
fertilise	The action of fusing the male and female sex cells in order to develop an egg
gestation	The length of a pregnancy
pollination	The transfer of pollen to a stigma to allow fertilisation
endangered	Any type of plant or animal that is in danger of disappearing forever
reproduction	The process of new living things being made
life cycle	The journey of changes that take place throughout the life of a living thing including birth, growing up and reproduction

Science - Year 6 Autumn 1: Scheme of Learning
What did we learn in year 5 - Retrieval and consolidation

As part of transition into Year 6, Year 5 Science assessments will be shared and areas of weaker knowledge will be revisited along with an opportunity to continue working on the working scientifically destinations.

Teachers will use this data to identify gaps in knowledge and skills to plan an appropriate sequence of lessons retrieving prior learning in the context of an investigation linked to working scientifically criteria for Year 5 & 6.

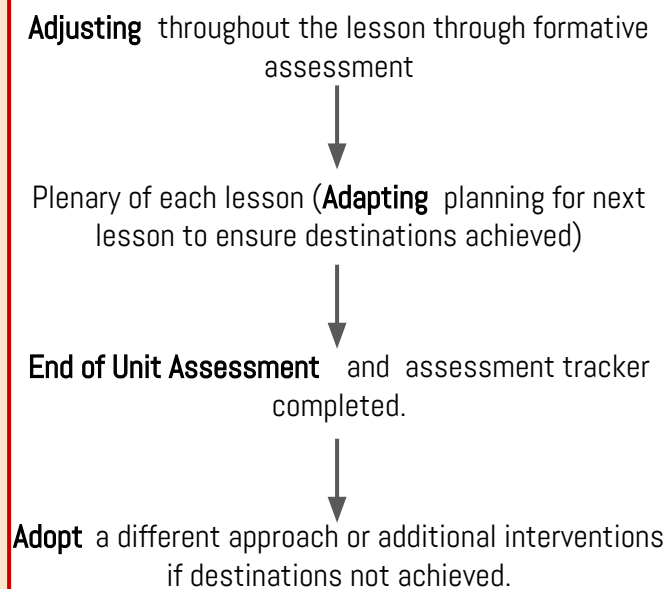
Working Scientifically and retrieval practice Year 5	<u>Working Scientifically Year 5 & 6</u>	<u>Key knowledge Year 5</u>
	<p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity • using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments. 	<p align="center"> <u>Animals including Humans</u> <u>Properties and Changes of Materials</u> <u>Earth & Space</u> <u>Forces</u> <u>Living things and their habitats</u> </p>



Science - Year 6 Autumn 2: Scheme of Learning Light

Light	Focus - Key Questions	Links	Destinations (I will be able to ...)
	How do we see?	Whole School Theme: We are Artists Art: Yayoi KUsama & Light box	<ul style="list-style-type: none"> Explain that light travels in straight lines Explain how we see things (<i>light travels in straight lines from light sources to our eyes, and from light sources to objects and then to our eyes</i>)
	How do mirrors work?		<ul style="list-style-type: none"> Explain how light is reflected Use my understanding of reflection to create a working periscope Explain how a periscope helps me to see objects i would not usually be able to see
	What is refraction?		<ul style="list-style-type: none"> Understand how light is refracted Investigate the effects of refraction Understand the way refraction alters the direction of light
	What is the Theory of Colour?		<ul style="list-style-type: none"> Understand how a prism affects a ray of light Explain the visible spectrum Describe what Isaac Newton discovered about light
	How does light enable us to see colours?		<ul style="list-style-type: none"> Explain what Isaac Newton discovered about colour Investigate and understand how light enables us to see colours
	Why are shadows the same shape as the object that casts them?		<ul style="list-style-type: none"> Explain how a shadow is formed Explain why shadows are the same shape as the object that casts them

Assessment in Science:



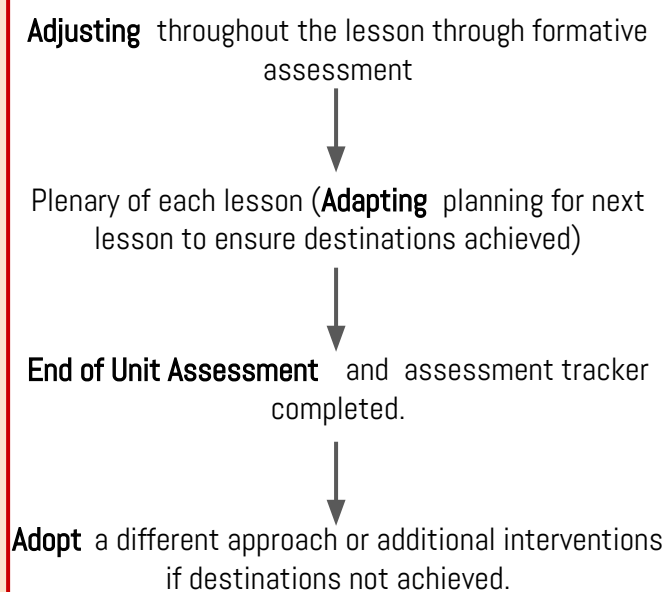
Visible spectrum	Light that is visible to the human eye. It is made up of a colour spectrum.
refraction	This is when light bends as it passes from one medium to another. E.g. Light bends when it moves from air into water
Incident ray	A ray of light that hits a surface
transparent	Describes objects that let light travel through them easily, meaning you can see through the object
translucent	Describes objects that let some light through, but scatters the light so we can't see through them properly
opaque	Describes objects that do not let any light pass through them
reflection	Reflection is when light bounces off a surface, changing the direction of a ray of light
shadow	An area of darkness where light has been blocked
light	A form of energy that travels in a wave from a source



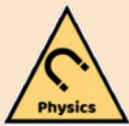
Science - Year 6 Spring 1: Scheme of Learning Living Things and Their Habitats

Living Things and Their Habitats	Focus - Key Questions	Links	Destinations (I will be able to ...)
	How do we classify animals? <i>(Learning progression: Year 4, Living things and their habitats)</i>	Whole School Theme: We are Geographers Geography: Migration	<ul style="list-style-type: none"> Sort and group animals based on their features Give reasons for the way I have classified animals
	What is the Linnaean system of classification?		<ul style="list-style-type: none"> Explain how living things are classified using the Linnaean system (<i>understanding of Carl Linnaeus - pioneer of classification</i>) Classify living things using the Linnaean system
	What are the characteristics of different types of animals?		<ul style="list-style-type: none"> Identify different types of animals Match the types of animals to their characteristics Classify animals based on their characteristics
	Are microorganisms helpful or harmful?		<ul style="list-style-type: none"> Identify types of microorganism (<i>Yeast, penicillin, bacteria in cheese, yogurt vs chicken pox, influenza caused by virus, mould, plaque, etc</i>) Describe helpful and harmful microorganisms
	What are the characteristics of different microorganisms?		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Plan an investigation to look at harmful microorganisms
	What organisms are found in my local habitat?		<ul style="list-style-type: none"> Describe and compare the structure of different cells (<i>eukaryotic microorganisms vs prokaryotic microorganisms</i>) Describe the characteristics of different microorganisms
	<u>Working Scientifically:</u> <ul style="list-style-type: none"> Draw conclusions from results 		
	<ul style="list-style-type: none"> Group living things according to whether they are plants or animals Classify living things according to their characteristics Give reasons for the classification of different organisms Identify the characteristics of different groups of organisms, 		

Assessment in Science:



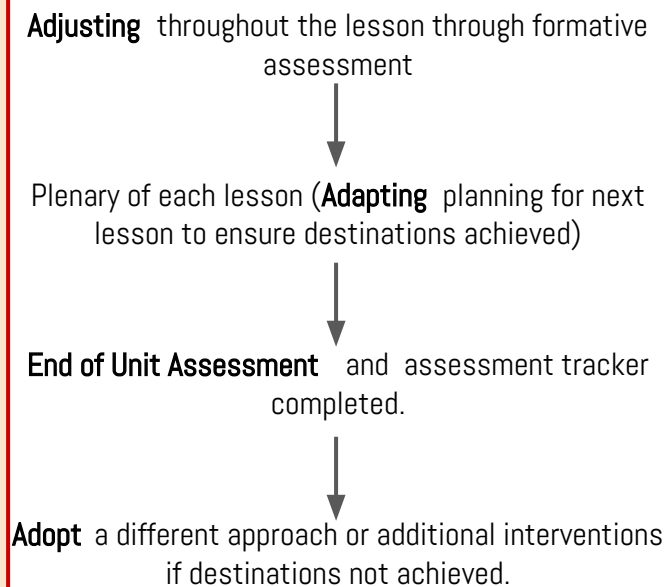
taxonomist	A scientist who classifies different living things in categories
microorganism	An organism that can only be seen using a microscope, e.g. bacteria, mould and yeast
key	A key is a series of questions about the characteristics of living things. A key is used to identify a living thing or decide which group it belongs to by answering 'yes' or 'no' questions
characteristics	Special qualities or appearances that make an individual of group of things different to others
microscope	A piece of equipment that is used to view very tiny (microscopic) things by magnifying their appearance
classify	To sort things into different groups
fungi	A simple organism, or living thing, that is neither a plant nor an animal
species	A group of animals that can reproduce to produce fertile offspring
bacteria	A single-celled microorganism



Science - Year 6 Spring 2: Scheme of Learning Electricity

Electricity	Focus - Key Questions	Links	Destinations (I will be able to ...)
	How do different volts affect a circuit?	<i>Whole School Theme: We are Scientists</i> <i>Reading: The Invention of Hugo Cabret</i> <i>Science Year 4 - Electricity</i>	<ul style="list-style-type: none"> Know the scientific symbols for the main parts of a circuit Create circuit diagrams using scientific symbols
	What impacts the brightness of a bulb?		<ul style="list-style-type: none"> Draw circuit diagrams indicating the voltage Explain the effect of increasing or decreasing the voltage on different parts of a circuit
	What variations cause an impact on component functions? Electricity investigation: Part 1		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Select an appropriate scientific enquiry (<i>to systematically identify the effect of changing one component at a time in a circuit</i>) Plan an investigation in detail
	What variations cause an impact on component functions? Electricity investigation: Part 2		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Use my plan to conduct an investigation Adjust my plan if necessary Decide how to record my findings as data Decide how to report my findings appropriately
	What variations cause an impact on component functions? Electricity investigation: Part 3		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Use my results to make new predictions Plan and conduct further investigations
	How was electricity discovered?		<ul style="list-style-type: none"> Identify how our understanding of electricity has changed over time Explain how major discoveries affected our understanding and use of electricity

Assessment in Science:



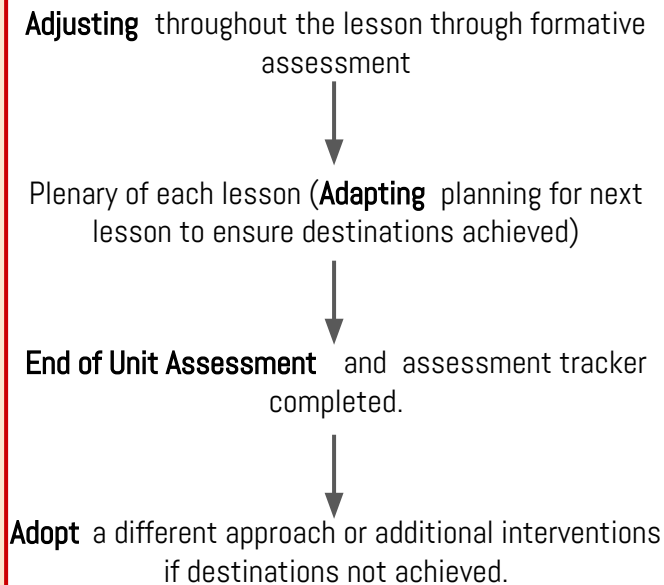
voltage	Force that pushes electric energy through a circuit - the power that makes electricity flow .
current	The flow of electric charges (like tiny particles) in a circuit - the movement of electricity.
amps	A measure of the amount of current in a circuit. It tells us how many electric charges are flowing.
circuit	A pathway for electricity. It's a closed loop that allows electric current to flow, powering devices.
cell	Small device that produces electrical energy . Many cells together can make a battery.
battery	A collection of cells connected together. It stores electrical energy and can be used to power various devices.
symbol	A picture that stands for something else.



Science - Year 6 Summer 1: Scheme of Learning Animals Including Humans

Animals Including Humans	Focus - Key Questions	Links	Destinations (I will be able to ...)
	How does our heart work?	Whole School Theme: We are Historians	<ul style="list-style-type: none"> Identify the three main parts of the human circulatory system Explain what the heart does
	What are is the job of our blood?		<ul style="list-style-type: none"> Describe the differences between arteries, capillaries and veins Discuss the four parts that blood is made up from (<i>plasma, red blood cells, white blood cells & platelets</i>) Explain why blood is oxygenated and deoxygenated Describe the ways nutrients and water are transported
	How does exercise affect the heart?		<u>Working Scientifically:</u> <ul style="list-style-type: none"> Make a prediction about the effect of exercise on heart rate Carry out an investigation to look at how exercise affects heart rate Draw a conclusion from my results
	Why is exercise important?		<ul style="list-style-type: none"> State the benefits of exercise Explain the importance of exercise and its impact on the body
	How does diet and exercise affect the body? <i>(Learning progression: Year 3, Animals including humans)</i>		<ul style="list-style-type: none"> Discuss what might make a lifestyle more healthy or less healthy Interpret information about the diet and activities of different people Explain why different people have different calorie requirements
What is the impact of drugs and alcohol on the way our body functions?	<ul style="list-style-type: none"> Explain how drugs and alcohol can affect the body Describe the impact of drugs and alcohol on the circulatory system 		

Assessment in Science:



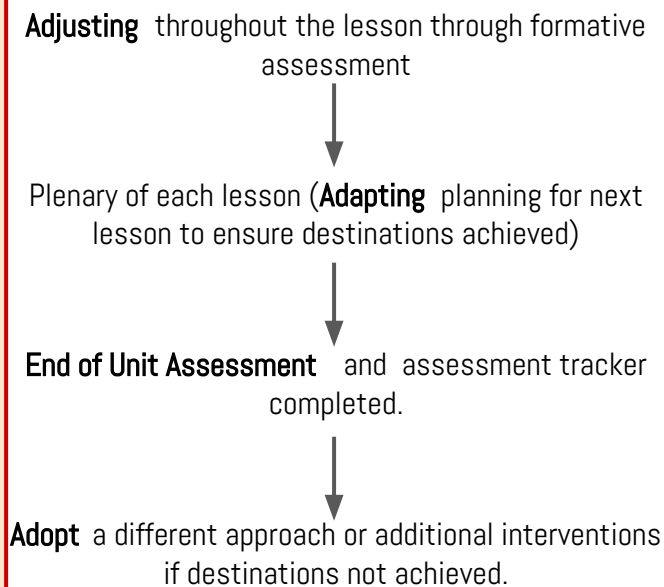
Circulatory system	A system which includes the heart, veins, arteries and blood transporting substances around the body
Blood vessels	The tube-like structures that carry blood through the tissues and organs. Veins, arteries and capillaries are the three types of blood vessels
Oxygenated blood	Oxygenated blood has more oxygen. It is pumped from the heart to the rest of the body
Deoxygenated blood	Deoxygenated blood is blood where most of the oxygen has already transferred to the rest of the body
heart	An organ which constantly pumps blood around the circulatory system
nutrients	Substances that animals need to stay alive and healthy
alcohol	A drug produced from grains, fruits or vegetables when they are put through a process called fermentation
drug	A substance containing natural or man-made chemicals that has an effect on your body when it enters your system



Science - Year 6 Summer 2: Scheme of Learning Evolution & Inheritance

Evolution & Inheritance	Focus - Key Questions	Links	Destinations (I will be able to ...)
	What is the scientific meaning of inheritance?	<i>Whole School Theme: So we can change the world</i>	<ul style="list-style-type: none"> Identify inherited characteristics that are passed on from parents to offspring Explain how inherited characteristics can lead to variation
	Why is adaptation important for animals and plants?		<ul style="list-style-type: none"> Understand that adaptations are mutations Identify adaptive traits
	What are the key ideas of the theory of evolution?		<ul style="list-style-type: none"> Demonstrate understanding of how ideas about evolution developed over time (<i>Mary Anning, Charles Darwin and Alfred Wallace</i>) Explain the terms adaptation, evolution and natural selection
	What evidence is there to support the theory of evolution?		<ul style="list-style-type: none"> Examine fossil evidence (prior learning Year 3, summer 2: Rocks) Explain how a living thing has evolved over time
	How have human beings evolved?		<ul style="list-style-type: none"> Identify adaptive traits in humans as a species Describe the known stages of human evolution Compare modern humans with members of the same genus and family
	How does adaptation lead to evolution and what role does human intervention have in the process?		<ul style="list-style-type: none"> Understand that some living things have acquired more adaptive traits than others Identify advantages and disadvantages of specific intervention Explain how humans have created new varieties of living things through selective breeding Demonstrate understanding of the issues raised by human intervention in the evolutionary process

Assessment in Science:



adaptation	An adaptation is a trait (or characteristic) changing to increase a living thing's chances of surviving and reproducing
inheritance	This is when characteristics are passed onto offspring from their parents
Inherited traits	These are traits you get from your parents. Within a family, you will often see similar traits, e.g. curly hair
Adaptive traits	Genetic features that help a living thing to survive
Natural selection	The process where organisms that are better adapted to their environment tend to survive and produce more offspring
evolution	Adaptation over a very long time
fossil	The remains or imprint of a prehistoric plant or animal, embedded in rock and preserved
variations	The difference between individuals within a species
habitat	Refer to a specific area or place in which particular animals and plants can live
characteristics	The distinguishing features or qualities that are specific to a species
offspring	The young animal or plant that is produced by the reproduction of that species